

that contains at least one oxygen atom, with the compound being present in an amount sufficient to complex the metal ion to render it soluble in the solution and to inhibit oxidation of the metal ion; and

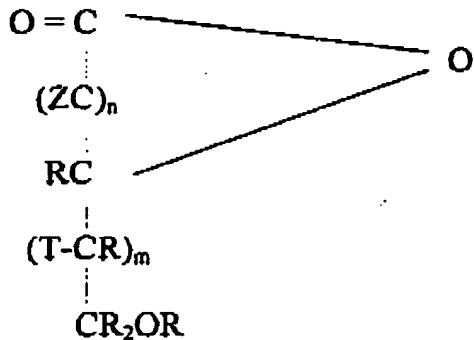
a pH of the solution in the range of between 3.5 and 5.5, adjusted, if necessary, by the addition of a suitable pH adjusting agent;

wherein the complexing agent and metal ion are present in a concentration ratio of between about 2:1 and 9:1 to reduce or minimize agglomeration of the substrates during electroplating;

so that significant agglomeration of such substrates is avoided when a current is passed through the solution to provide the metal electrodeposits on the substrates.

33. (Currently Amended) The method of claim 32, wherein the metal ions are tin ions and are ion is a tin ion that is present in an amount of between about 5 and 100 g/l.

34. (Previously Presented) The method of claim 32, wherein the complexing agent is present in an amount of about 25 to 200 g/l and has the structure:



wherein each R is the same or different and is hydrogen or a lower alkyl group of 1 to 3 carbon atoms, T is R, OR, or O=P(OR)₂⁻, Z is O= or RO-, n is 2-4 and Z can be the same or different in each occurrence in the structure, and m is 1-3, or the complexing agent is a soluble salt of such structure.

35. (Currently Amended) The method of claim 32, wherein the complexing agent is ascorbic acid, isoascorbic acid, ~~dehydroascorbic~~ dehydroascorbic acid, glucoascorbic acid, galacturonic acid, glucoronic acid, glucose-6-phosphate, or a salt thereof, or is derived from a ketogluconate or heptagluconate and is present in an amount of about 25 to 200 g/l.

36. (Previously Presented) The method of claim 32, wherein the solution further comprises one of a conductivity salt of an alkali or alkaline metal sulfate, sulfonate, or acetate compound, or a surfactant of an alkylene oxide condensation compound in an amount of about 0.01 to 20 g/l, or both.

37. (Previously Presented) The method of claim 32, wherein the substrates are composite articles having electroplatable and non-electroplatable portions, the pH adjusting agent is an acid or a base and the pH is adjusted to the range of about 3.5 to 5.5 to enable electroplating of the electroplatable portions of the articles without deleteriously affecting the non-electroplatable portions.